



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,195	11/26/2003	John F. Wirkus	GSIE 8803US	9038

1688 7590 03/28/2005

POLSTER, LIEDER, WOODRUFF & LUCCHESI
12412 POWERS COURT DRIVE SUITE 200
ST. LOUIS, MO 63131-3615

EXAMINER

NGUYEN, TU MINH

ART UNIT	PAPER NUMBER
----------	--------------

3748

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

8N

Office Action Summary	Application No. 10/723,195	Applicant(s) WIRKUS ET AL.	
	Examiner Tu M. Nguyen	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. An Applicant's Amendment filed on December 6, 2004 has been entered. Claims 1 and 11-21 have been amended; and claims 23-35 have been added. Overall, claims 1-35 are pending in this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 6, 8-11, and 17-20 are rejected 35 U.S.C. 102(b) as being anticipated by Khair et al. (U.S. Patent 6,138,649).

Re claims 1 and 11, as shown in Figure 3, Khair et al. disclose an afterburner and an exhaust gas recirculation valve system for a motor vehicle, the valve system comprising:

- an exhaust gas recirculation valve (38);
- an intake pipe (236) coupled to an intake orifice of the exhaust gas recirculation valve (38); and
- a screen (244) affixed to the intake pipe that captures and burns particles contained in an exhaust gas which are a size large enough to obstruct the exhaust gas recirculation valve;

wherein the exhaust gas stream heats the screen to a temperature sufficient to burn the particles (lines 21-26 of column 13).

Re claims 9, 10, 19, and 20, in the valve system and the afterburner of Khair et al., the screen is made from a stainless steel with a high thermal conductivity.

Re claims 6 and 17, in the system and the afterburner of Khair et al., the screen (244) is affixed to an intake pipe by interference fit.

Re claims 8 and 18, in the system and afterburner of Khair et al., the screen (244) is affixed to an intake pipe by mechanical means.

4. Claims 32-33 are rejected 35 U.S.C. 102(b) as being anticipated by Lewis (U.S. Patent 5,027,781).

Re claim 32, as shown in Figures 2-5, Lewis discloses an exhaust gas recirculation valve system for a motor vehicle, comprising:

- an exhaust gas recirculation valve (12);
- an intake pipe (14) coupled to an intake orifice of the exhaust gas recirculation valve (12); and
- a screen (13) located upstream of the exhaust gas recirculation valve (12), wherein the screen being affixed to the intake pipe solely with an interference fit (lines 46-51 of column 3).

Re claim 33, in the system of Lewis, the screen has an outwardly flared open end which, when the screen is pushed down into an open end of the intake pipe, engages the interior of the pipe and prevents the screen from moving in the pipe during normal operation of the system.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khair et al. as applied to claims 1 and 11, respectively, above, in view of legal precedent.

Re claims 2 and 16, the valve system and afterburner of Khair et al. disclose the invention as cited above, however, fail to disclose that the screen is thimble-shaped.

It would have been an obvious matter of design choice to have the screen of Khair et al. in thimble-shaped, since it has been held that a change in the shape of the element involves only routine skill in the art. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Re claims 3-5, the afterburner of Khair et al. discloses the invention as cited above, however, fails to disclose that the screen has a mesh size of about 12 to 20, wherein the screen has a minimum size of 5 mesh, and a maximum size of 40 mesh.

Khair et al. disclose the claimed invention except for specifying an optimum range of mesh size for the screen. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a specific optimum range of mesh size for the screen, since it has been held that where the general conditions of a claim are disclosed in the prior art,

Art Unit: 3748

discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

7. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khair et al. as applied to claim 11 above, in view of official notice.

The valve system of Khair et al. discloses the invention as cited above, however, fails to disclose that the exhaust gas recirculation valve is at least one of an integral backpressure type valve, a ported type valve, an electronic type valve, and a transducer type valve.

It is well known to those with ordinary skill in the art that the EGR valve utilized by Khair et al. is at least one of an integral backpressure type valve, a ported type valve, an electronic type valve, and a transducer type valve. Therefore, such disclosure by Khair et al. is notoriously well known in the art so as to be proper for official notice.

8. Claims 21-23 and 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khair et al. in view of official notice.

Re claim 21, as illustrated in Figure 3, Khair et al. disclose a method of afterburning large particles in an exhaust gas stream of an internal combustion engine, the method comprising the steps of:

- heating a perforate afterburner (244) with an exhaust gas stream to a temperature high enough to burn large particles, the afterburner being located within the exhaust gas stream;
- capturing large particles contained in exhaust gas stream with the afterburner;
- holding the captured particles with the afterburner for a sufficient time to burn the large particles to a size they can pass through the afterburner.

Art Unit: 3748

Khair et al., however, fail to disclose that the exhaust stream comprises at least one molar percent oxygen.

It is well known to those with ordinary skill in the art that during a soot burn-off of the screen, the exhaust stream must be lean of stoichiometric or contain excess air; or in other word, the exhaust stream must have at least one molar percent of oxygen. Therefore, such disclosure by Khair et al. is notoriously well known in the art so as to be proper for official notice.

Re claim 22, in the method of Khair et al., the afterburner is heated to a temperature of at least 900°F which is a generally accepted value for spontaneous combustion of soot trapped within a filter having an oxidation catalyst built within.

Re claim 23, as shown in Figure 3, Khair et al. disclose an afterburner (244) for an internal combustion engine of a motor vehicle, the afterburner comprising a screen affixed to an intake pipe located upstream of an exhaust gas recirculation valve, wherein the screen captures and burns particles contained in an exhaust gas stream which are a size large enough to obstruct the exhaust gas recirculation valve (lines 21-26 of column 13)..

Khair et al., however, fail to disclose that the exhaust gas stream continuously heats the screen to a temperature sufficient to burn the particles while the exhaust gas stream is at least 900°F.

Since a temperature of at least 900°F is a generally accepted value for spontaneous combustion of soot trapped within a filter having an oxidation catalyst built within such as the one used in Khair et al., it is obvious to one with ordinary in the art that the particles are burned within the screen at a temperature of at least 900°F.

Art Unit: 3748

Re claim 28, in the afterburner of Khair et al., the screen (244) is affixed to an intake pipe by interference fit.

Re claim 29, in the afterburner of Khair et al., the screen (244) is affixed to an intake pipe by mechanical means.

Re claims 30-31, in the afterburner of Khair et al., the screen is made from a stainless steel with a high thermal conductivity.

9. Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khair et al. as applied to claim 23 above, in view of legal precedent.

Re claim 24, the afterburner of Khair et al. disclose the invention as cited above, however, fail to disclose that the screen is thimble-shaped.

It would have been an obvious matter of design choice to have the screen of Khair et al. in thimble-shaped, since it has been held that a change in the shape of the element involves only routine skill in the art. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Re claims 25-27, the afterburner of Khair et al. discloses the invention as cited above, however, fails to disclose that the screen has a mesh size of about 12 to 20, wherein the screen has a minimum size of 5 mesh, and a maximum size of 40 mesh.

Khair et al. disclose the claimed invention except for specifying an optimum range of mesh size for the screen. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a specific optimum range of mesh size for the screen, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Art Unit: 3748

10. Claims 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khair et al. in view of legal precedent and Lewis.

Re claim 34, as depicted in Figure 3, Khair et al. disclose a method of afterburning large particles in an exhaust gas stream of an internal combustion engine, the method comprising pushing a screen into a pipe of an exhaust system of the engine in a part of the exhaust system which is heated by the exhaust gas stream to a temperature sufficient to burn the particles.

Khair et al., however, fail to disclose that the exhaust stream comprises at least one molar percent oxygen; the temperature is 900°F; and that the screen is held in position by friction.

It is well known to those with ordinary skill in the art that during a soot burn-off of the screen, the exhaust stream must be lean of stoichiometric or contain excess air; or in other word, the exhaust stream must have at least one molar percent of oxygen. Therefore, such disclosure by Khair et al. is notoriously well known in the art so as to be proper for official notice.

Since a temperature of at least 900°F is a generally accepted value for spontaneous combustion of soot trapped within a filter having an oxidation catalyst built within such as the one used in Khair et al., it is obvious to one with ordinary in the art that the particles are burned within the screen at a temperature of at least 900°F.

As shown in Figures 2-5, Lewis teaches an EGR valve carbon control screen and gasket system comprising a screen (13, 18) being held in place by friction (lines 46-51 of column 3). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the screen taught by Lewis in the method of Khair et al., since the use thereof would have provided an effective means to attach a screen to the EGR pipe of Khair et al.

Art Unit: 3748

Re claim 35, in the modified method of Khair et al., the screen (as shown in Lewis) has an outwardly flared open end which, when the screen is pushed down into an open end of the intake pipe, engages the interior of the pipe and prevents the screen from moving in the pipe during normal operation of the system.

Response to Arguments

11. Applicant's arguments with respect to the references applied in the previous Office Action have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Prior Art

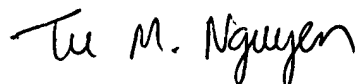
13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of two patents: Ceynow et al. (U.S. Patent 5,440,880) and Sheridan et al. (U.S. Patent 5,617,726) further disclose a state of the art.

Communication

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TMN
February 22, 2005

Tu M. Nguyen
Primary Examiner
Art Unit 3748